may then be output to the control part **52** configured to include the neighbor information in the scanning response messages, e.g. in the field of Table 1.

[0054] The circuitries **52** to **58** of the communication controller circuitry **50** may be carried out by the one or more physical circuitries or processors. In practice, the different circuitries may be realized by different computer program modules. Depending on the specifications and the design of the apparatus, the apparatus may comprise some of the circuitries **52** to **58** or all of them.

[0055] The apparatus may further comprise the memory **60** that stores computer programs (software) configuring the apparatus to perform the above-described functionalities of the access point. The memory **60** may also store communication parameters and other information needed for the wireless communications within a wireless network of the access point and with other wireless networks. The apparatus may further comprise radio interface components **62** providing the apparatus with radio communication capabilities within its wireless network and/or with other wireless networks. The radio interface components **62** may comprise standard well-known components such as an amplifier, filter, frequency-converter, (de)modulator, and encoder/decoder circuitries and one or more antennas. The apparatus may further comprise a user interface enabling interaction with the user of the communication device. The user interface may comprise a display, a keypad or a keyboard, a loudspeaker, etc.

[0056] In an embodiment, the apparatus carrying out the embodiments of the invention in the wireless apparatus comprises at least one processor and at least one memory including a computer program code, wherein the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus to carry out the functionalities of the access point according to any one of the processes described above. Accordingly, the at least one processor, the memory, and the computer program code form processing means for carrying out embodiments of the present invention in the access point.

[0057] As used in this application, the term 'circuitry' refers to all of the following: (a) hardware-only circuit implementations, such as implementations in only analogue and/or digital circuitry, and (b) to combinations of circuits and software (and/or firmware), such as (as applicable): (i) a combination of processor(s) or (ii) portions of processor(s)/software including digital signal processor(s), software, and memory(ies) that work together to cause an apparatus to perform various functions, and (c) to circuits, such as a microprocessor(s) or a portion of a microprocessor(s), that require software or firmware for operation, even if the software or firmware is not physically present. This definition of 'circuitry' applies to all uses of this term in this application. As a further example, as used in this application, the term "circuitry" would also cover an implementation of merely a processor (or multiple processors) or portion of a processor and its (or their) accompanying software and/or firmware. The term "circuitry" would also cover, for example and if applicable to the particular element, a baseband integrated circuit or applications processor integrated circuit for a wireless device.

[0058] The processes or methods described in FIGS. **2** to **5**B may also be carried out in the form of a computer process defined by a computer program. The computer program may be in source code form, object code form, or in some intermediate form, and it may be stored in a transitory or a non-transitory carrier, which may be any entity or device capable of carrying the program. Such carriers include a record medium, computer memory, read-only memory, electrical carrier signal, telecommunications signal, and software distribution package, for example. Depending on the processing power needed, the computer program may be executed in a single electronic digital processing unit or it may be distributed amongst a number of processing units.

[0059] The present invention is applicable to wireless networks defined above but also to other suitable wireless communication systems. The protocols used, the specifications of wireless networks, their network elements and terminals, develop rapidly. Such development may require extra changes to the described embodiments. Therefore, all words and expressions should be interpreted broadly and they are intended to illustrate, not to restrict, the embodiment. It will be obvious to a person skilled in the art that, as technology advances, the inventive concept can be implemented in various ways. The invention and its embodiments are not limited to the examples described above but may vary within the scope of the claims.

1-25. (canceled)

26. A method, comprising:

receiving, by a wireless device, a first downlink frame from a first access point, wherein the first downlink frame indicates a first transmission power used for transmitting the first downlink frame;

receiving, by the wireless device, a second downlink frame from a second access point, wherein the second downlink frame indicates a second transmission power used for transmitting the second downlink frame;

determining, based on the received first downlink frame and the second downlink frame and associated the first transmission power and the second transmission power, which one of the first access point and the second access point is closest to the wireless device;

determining, based on the received first downlink frame and the second downlink frame and associated the first transmission power and the second transmission power, an uplink transmission power sufficient to reach the access point closest to the wireless device; and

causing transmission of a probe request with the determined transmission power.

27. The method of claim **26**, wherein determining the uplink transmission power comprises determining a minimum uplink transmission power sufficient to reach the closest access point but not the most remote access point, and wherein thus determined uplink transmission power is applied to the transmission of the probe request.

28. The method of claim **26**, wherein each one of the first downlink frame and the second downlink frame is a measurement pilot frame, a beacon frame, or a data frame.

29. The method of claim **26**, wherein the wireless device is configured to carry out carrier sensing on a transmission medium before transmitting the probe request, the method further comprising:

determining at least one carrier sensing threshold on the basis of the determined uplink transmission power; and

using thus determined carrier sensing threshold in the carrier sensing to determine whether the transmission medium is busy or free before transmitting the probe request.